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ABSTRACT

Six adult students of English as a second language were ranked according to individual input into classroom oral interaction. Four hypotheses were then tested, regarding correlation between degree of input generation on the one hand and achievement and performance on the other. It was found that: (1) high input generators (HIGs) performed better than low input generatore (LIGs) on a course final examination, (2) a Language Contact Profile revealed that HIGs had the greater amount of contact with English speakers, (3) HIGs did not perform significantly better on a cloze test than LIGs, and (4) results of the Group Embedded Figures Test partially supported the notion that LIGs are characterized by greater field dependence than HIGs. These results suggest a pedagogically useful division of language learners into those who take an active and those who take a passive approach to their learning task. (JB)

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A STUDY OF INTERACTION PATTERNS AND L2 COMPETENCE

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Practice as a Function of Interaction

For the purposes of this study, the term practice has been defined as any verbal interaction between the learner and others in his environment. Usually such interaction consists of an output speech act by the learner and an input speech act from some other speaker. In some cases input will precede output and in other cases the reverse may be true. In the language classroom, those providing input to the learner may be the teacher or fellow classmates. When the teacher directs a question to a specific learner, that input will usually elicit output from the learner. The learner himself may elicit input by asking questions or commenting aloud thus engendering language responses from other learners or from the teacher.[2]

In the sense used in this paper, practice has been measured quantitatively as the gross number of such interactions. The more interactions that take place, the more practice is said to take place. In addition, input/output speech acts which make up the interaction may vary in length from one word such as yes or no to several sentences in reply to an input question. In recording interactions for this study, no cognizance was taken of differences in length or complexity. Only the fact of an interaction having taken place was recorded. It is assumed that even in the case of a simple but meaningful yes or no, practice is taking place in the form of processing the input which generated yes or no.

This study tested the hypothesis that learners who practice by initiating interactions, and thereby cause a concomitant input from others, will benefit more from practice opportunities. These learners will be called high input generators (HIG). By initiating language interaction, the high input generator causes a reflexive response in the form of more language input to himself. Conversely, at the other extreme are language learners who play a relatively passive role in language interaction. Their behavior is reactive to input but they do little to initiate situations which cause more input to be directed to them. Such learners will be called low input generators. (LIG). In language classes, low input generators prefer to be left alone. Often, the low input generator only interacts with the teacher during drill sessions. In a previous study (Seliger and Gingras, 1976), low input generators had as much as 98% of their intereactions with the teacher while high input generators, who produced more total output, had as little as 35% of their interactions with the teacher while 65% of their interactions was with other students And in the target language. In addition, because of the normal limitations of time and class size, those who wait to

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be spoken to before speaking will speak very little while those who take the initiative in such situations will practice much more.

It also appears that small children at the language acquisition stage and adult second language learners exhibit similar kinds of interactive behavior and that such behavior may serve the same purpose for both kinds of language acquisition contexts. For example, a not-yet-two-year-old (the author's child) would often initiate language interaction even though it was obvious that little communication was taking place. She would often push her father's newspaper aside to get his attention and then direct a stream of gibberish at him mixed with a few hardly understood words. He, in turn, could discuss the weather, the stock market, her siblings or American foreign policy with her. It didn't seem to matter what was said as long as some interaction was taking place. As long as the child was answered, she would continue the game for quite some time. The question that must be asked is why a baby would participate in an activity in which very little was understood. One might explain such activity on the basis of Mowrer's (1960) autism theory of language acquisition and state that the baby was simply deriving pleasure from the vocal contact with a parent. However, it is possible that this very natural form of behavior might well be an important learning strategy in the language acquisition process. What the child was doing was getting language knowers to use language at her. Since she was dependent on the language knowers in her environment to provide her with appropriate models, she had a choice of sitting and waiting to be addressed or causing others to relate to her and feed her language. (For a similar view see A.R. Luria, 1974/75.)

It is proposed here that a similar strategy is used by adult second language learners. In a program in which assumptions about minimal levels of education may be made and in which students are groupsed homogeneously by placement tests, one still finds differing rates of acquisition for different learners. What becomes obvious if one teachers or observes such classes is that there are differing degrees of learner involvement in the language lesson. Some students, the high input generators, are actively involved, and, like the child, cause input to be directed at them by calling out, answering out of turn, and working out answers to questions or drill cues directed to others. Such students can often be observed talking to themselves during language drills. Still other students, the low input generators, sit quietly but rarely and, in some extreme cases, never participate unless specifically asked to do so.

Design and Methodology

The Primary Hypothesis

The purpose of this experiment was to test the primary hypothesis that high input generators (HIG) would tend to be higher achievers than low input generators (LIG) when rankings of the HIG and LIG were compared for intensity of interaction and achievement.

H_1: HIG > LIG when compared for interaction and achievement.

Achievement was defined as the learner's performance on examinations given at the end of a fifteen week semester when compared with his performance on placement examinations given at the beginning of the same semester. The same examinations which were given as pretest and post-test were a discrete point test of English structure (Lado-Fires) and the Queens College English Language Institute Test of Aural Comprehension which is an integrative measure. In addition, all subjects were tested with a cloze test at the end of the semester.

Subjects and Classroom Environment

The adult subjects for this study were selected from an upper intermediate level class in the English Language Institute which is an intensive ESL program for foreign students at Queens College, C.U.N.Y. The six subjects who contributed the data for this study were selected from a class of twelve students after four hours of class observation. They were selected on the basis of being classified as either high interactors or low interactors. (See below for description of interaction measurement.) The subjects were: two Iranians, one Japanese, one Greek, one Israeli, and one Spanish speaker.

The observations for interaction took place in regular classes of the Institute. The only condition placed on which classes were to be observed was that the lesson allow for as much verbal interaction as possible. For this reason, only classes concerned with teaching oral skills were observed. All observed classes were what might be called "frontal" in the sense that the students sat in rows all facing the teacher.

The Measurement of Verbal Interaction

Language interaction was observed by two observers during four hours of classes. Two observers were used to control for observer reliability. A previous study, Seliger and Gingras (1976), found inter-observer agreement on the relative ranking of student interaction to correlate at .984. In this study, inter-observer correlation was .917. Even though a comparison of exact numbers of interactions tabulated for each student would differ for the observers, the overall ranking of students showed the above levels of agreement. The discrepancy in interaction scores between observers can be explained on the basis of the size of the group that is being observed and the positions of the observers. Observers usually sat on opposite sides of the classroom so that, while there was some overlapping of fields of vision, interactions which happened close to one observer might be missed by another. Group size is also a determining factor. Bales (1970) suggests that no group be greater than seven for such observations.

Any speech act by a student in the class was counted as an interaction. Speech acts considered as one interaction might be a single word or several sentences in a discourse. Using a code, the following information about each interaction was recorded on a tabulation sheet devised for the experiment:

a. Which student spoke? Did he/she address another student? the teacher? the whole group?

b. Did the student initiate the interaction (shown by +) or was he responding (shown by /)?

c. Was the student using English or his L1 in the interaction? (Shown by (+) for initiated but in L1 and (/) for respondent but in L1.)

The number of these interactions was tabulated for each student in the observed class at the end of each observation session. At the conclusion of the four hours of observation, the students were ranked according to the total number of interactions and the type of interactions in L2. Three of the highest interactors (HIG) and three of the lowest interactors (LIG) were then selected from the class of twelve for further study. These six were then interviewed, administered a language contact and motivation questionnaire and an embedded figures test.

The Language Contact Profile

The Language Contact Profile (LCP) is a revised version of a previous questionnaire devised by Seliger and Gingras (1976) for the study of language contact and motivation. It is a self-report questionnaire administered by the experimenter. The LCP quantifies the learner's motivation and the extent of contact with the second language (potential practice opportunities) outside of regular language classes. While numerical values are obtained in response to the variously weighted questions, the LCP admittedly provides only approximate measures and they should be interpreted as such.

The results obtained from the LCP were compared with other measures to examine the relationship between out-of-class language activity and classroom interaction patterns. Hypothesis #2 was that HIG differed from LIG in the amount of such out-of-class language activity.

H_2: HIG > LIG for LCP scores

Cloze

A cloze test consisting of 50 items in which every fifth word in the test was left out was administered to all E.L.I. students as part of the final examination battery. This test was not used as part of the placement battery. The test was marked using the exact word method. The scores that appear in Table 1 are percentages.

Rankings for interaction and cloze were correlated (Table 2) for the six subjects. It was hypothesized that HIGs would score higher than LIGs. This is based partially on DeFazio's (1973) findings that field independents (see below) perform better on the cloze test and the generally accepted notion that cloze is a reliable measure of integrative or functional abilities in L2.

H_3: HIG > LIG for cloze.

Field Sensitivity

Subjects were administered the Group Embedded Figures Test. Adjustments were made in time allotments per section of the test. The Group Embedded Figures Test is a corresponding form for the individual Embedded Figures Test. In this test, the subject is asked to find a designated figure which is embedded in another

figure. The task is similar to those found in children's books and magazines in which the child is asked to find the shape of an object such as an animal when it is part of a larger figure. In the case of the embedded figures test, the subject is asked to find a geometric shape which is embedded within another geometric shape.

The Embedded Figures Test is a further development of the concept of field sensitivity originally proposed by Witkin and his associates (1954). In the last few years, many studies have examined the personality and cognitive style parameters of this concept (See for example, Witkin, Cox, and Friedman, 1976). Two general psychological types which relate to other affective and cognitive variables have been identified from these studies. Individuals are thought to be on a continuum of what is termed field independence to field dependence. The relative ability to perceive figures within a context is called field independence. The relative inability to perform this task is termed field dependence. In other words, a confounding context has different effects on the perceptual abilities of individual subjects.

A recent study by Lefever and Ehri (1976) found a positive correlation between field independence and sentence disambiguation ability. DeFazio (1973) found that field independents tended to perform better than field dependents on cloze tests. Because of these and similar findings, it was suspected that HIG might be able to induce more from any language context and therefore felt less of a need to depend on structured drill than did the LIG. In addition, the fact the HIGs might be more intensely interacting with L2 outside the language classroom might be taken as an indication of their success in dealing with perceptually embedded language data. This success would in turn encourage further interaction. LIGs, on the other hand, if they are also field dependent, would be likely to experience difficulty in functioning in natural language environments and tend to avoid interaction.

Ramirez and Castaneda (1974) write that field dependent types are much more sensitive to the approval and disapproval of authority figures. Suzman (1973) states that field independent types use inner guides for action rather relying on such external cues as authority. Suzman also found that field independents were more willing to take risks than field dependents. All of this would tend to predict that HIGs would be field independent, less fearful of experimenting with language, less afraid to make mistakes and less afraid to speak out. Field dependent subjects, on the other hand, would be more likely to speak only when asked to in the language class and more fearful of disapproval because of mistakes.

In summary, because of the affective and cognitive variables associated with the field sensitivity construct, it was hypothesized that HIGs would also tend to be field independent while LIGs would tend toward field dependence.

H_4: HIG > LIG for measures of field independence.

Analysis of Results

(TABLES #1 and #2 about here)

H_1: HIG > LIG for Interaction and Final Examination Results.

This hypothesis was supported. It will be noted from Table #2 that negative or low correlations respectively were found for rankings based on the total number of interactions (Total Interactions) and rankings based on the percentage of interactions which were initiated (% initiated) when these were correlated with structure placement and aural comprehension placement. Based on these initial comparisons, it would not have been possible to predict the performance of subjects on the basis of placement tests. That is, placement test results would not have predicted final test results ($p = -.014$).

The negative or low correlations obtained for interaction and placement tests is problematic in light of the fact that strong positive correlations were found for interaction and final tests. In fact, the structure test which correlated negatively with interaction was very high in correlating as a final test. The following interpretations might be considered:

1) The discrete point test of specific rules does not measure communicative or functional abilities while aural comprehension does and the HIG may initially lack control of specific grammar rules while performing better on measure of functional ability. Therefore it would be expected that aural comprehension scores (placement and final) would show the same trend.

2) These subjects had had little exposure to intensive English as a second language. Their previous experience with English had been limited to the study of English as a foreign language taught by non-native speakers. It might be surmised that the HIGs were able to capitalize on practice opportunities in and out of class to improve not only functional ability as measured by the comprehension test but also to improve not only

2) (continued)
functional ability as measured by the comprehension test but also to improve upon previously acquired passive knowledge in grammar as measured by the discrete point structure test.

H_2: HIG > LIG for Language Contact (LCP)

This hypothesis was also supported. An item analysis of the results of the LCP reveals that HIGs tended to score higher than LIGs on item 15, 16 and 17. Item #15 asked subjects to name three of their closest friends in New York City and the language which they spoke with each friend. It was assumed that social contact with English would enable speakers to practice more of those skills related to the communicative use of language. It may also be taken as a measure of the personality type that the HIG represents. That is, he is a learner who seeks out opportunities for the use of L2.[3]

No relationship was found between the amount of time in the United States and the number of close English speaking friends. As an example, M and Z had been in the United States for approximately five months and both lived within communities which allowed easy access to speakers of their own L1. M, a Japanese woman, named two non-Japanese as her closest friends while Z, an Iranian woman, had no non-Persian speaking friends with whom she spoke English.

Item #16 asked the subjects to list three English speaking Americans with whom they have the most contact. This item distinguished contact with Americans (#16) from contact with anyone with whom English would be the language of communication (#15). In addition, subjects were asked to describe the kind of relationship they had with the person named. Suggested types of relationships were: teacher, storekeeper, friend, relative, landlord, etc. HIGs tended to list friends as their American contacts while LIGs tended to list teachers or doctors.

H_3: HIG > LIG for Cloze.

This hypothesis was not supported by the data. The ranking correlations between total interactions or initiated interactions and the cloze test results did not reach significance. However, the results (Table 2) do indicate a healthy trend in the direction of a relationship between a cloze integrative measure and interaction.

H_4: HIGs Tend toward Field Independence; LIGs Tend toward Field Dependence

The results as seen from Table #2 only partially support this hypothesis. Total interactions correlate significantly with field independence while rankings for initiated interaction do not. It should be noted that levels of significance are for one-tailed test. A two-tailed measure would be significant. However, given the small number of subjects, the general direction of the results is encouraging.

Conclusions

This study examined the relationship between external language behavior in the form of intensity of verbal interaction between the learner and his language environment and the effects of this interaction on language abilities as measured by language tests. While it may seem obvious at first glance that practice has an effect on language competence, it should also be obvious that different kinds of practice have different effects on developing competence. Teachers have long been frustrated with the phenomenon of near perfect performance in formal drill in class and the lack of transfer of this performance to real communicative ability.

This study has shown that learners may be classified into two main types:

1) Active learners who utilize all language environments, both formal and natural, for practice by interacting and getting others to use language with them are termed High Input Generators. The end result of their behavior is a competence which develops at a faster and perhaps qualitatively better rate. By getting more focused input, the High Input Generator is able to test more hypotheses about the shape and use of L2.

2) Passive learners who do not exploit practice opportunities and retreat from interaction are termed Low Input Generators. This type of learner will avoid intensive contact with the second language. For this reason, the Low Input Generator is heavily dependent on language learning environments such as the classroom which are artificially contrived to force him into contact with L2. Because of the limitations of formal learning environments, the Low Input Generator will receive a limited amount of focused input and will not seek out additional practice opportunities when left to his own devices. This "avoidance" behavior affects the rate of L2 achievement.

The results of this research apply only to the group studied. It focused on subjects who were at two extremes on the interaction continuum. It must be assumed, as with other learner variables, that the Input Generator concept is a continuum. It is also not inconceivable that learners who are typed as Low Input Generators in the classroom could compensate for the disadvantages of this behavior by other forms of language contact outside the classroom. No such exceptions were found in the group studied here.

The results of this study do raise important questions about previous research concerned with the role of formal instruction versus exposure to language in natural situations. At one extreme are those like Newmark and Reibel (1968) who have claimed that structuring in the normal sense is unnecessary. Others like Macnamara (1975) have claimed that adults can learn like children from exposure and that there are no real differences between child and adult abilities. Other studies (Krashen and Seliger, 1975, 1976 and Seliger, 1975) have argued that exposure is not the determining variable in adult success but instruction is.

It appears that the primary problem with all of these studies has been a simplistic view of both the learner's role and the term "exposure" or its synonyms--"practice opportunities" or "natural language settings." The term exposure is neutral. Being exposed to language is not like being exposed to a virus. One doesn't catch it automatically. Children seem to catch a first language automatically but one can hardly imagine a normal child retreating from language interaction. The adult apparently has the option. The learner must do something active that involves him cognitively in the process. The distinction that has been made between "input" and "intake" captures this.

This study has examined two extreme types of learners--those who intensively interact with their language environment and those who do not. Based on the results of this study, it may be concluded that High Input Generators will benefit from instruction because they are maturationally able to do so. However, they will also exploit other practice opportunities beyond what is presented formally. Low Input Generators on the other hand, do not interact intensively in language classes or outside of language classes. While they too are maturationally capable of benefiting from formal instruction, it appears that they are also dependent on it.

Footnotes

1. The author wishes to acknowledge the help of Stephen Schneider who aided in the collection of data for this study. This is a revised and expanded version of a paper presented at the Los Angeles Second Language Research Forum, February, 1977.

2. Practice also consists of covert activity such as listening to the radio, watching television and reading. However, there is no way to tell when a learner is actively focused on language input in such situations.

3. One might be lead to a conclusion from this statement that the HIG is an integratively motivated learner. However, Seliger and Gingras (1976) found no differential effects for integrative/instrumental motivation. This may simply mean that since all learners in these studies are foreign students in the L2 environment for a very short time, the measurement of integrative/instrumental motivation is inappropriate for this population. That is, interaction type and motivation type are not interacting variables for this kind of population. Further study of this problem with bilingual children is warranted.

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TABLE 1: RAW SCORES ON CRITERION MEASURES AND PERCENT CHANGE FOR PRE-TEST AND POST-TEST

	I			II	III			IV			V	VI
Student	A	B	C		A	B	C	A	B	C		
M	39	77	51%	45	84	92	8%	30	74	147%	43	60
A	40	71.5	56	46	63	89	41	62	90	31	44	48
N	62	92.5	67	52	64	91	42	64	86	34	41	48
D	12	31.5	38	30	71	89	25	36	56	56	39	36
Z	8	24.4	32	20	75	83	11	44	52	18	29	44
G	0	11	0	20	80	74	-8	46	56	21	32	28

Key to TABLE 1: I. Interactions, IA. Initiated interactions, IB. Total interactions,
IC. Percentage of total which were initiated.
II. Language Contact Profile Score (LCP)
III. Structure test, IIIA. Placement, IIIB. Final, IIIC. Percentage of change between Placement and Final.
IV. Aural comprehension, IVA. Placement, IVB. Final, IVC. Percentage of change between Placement and Final.
V. Cloze
VI. Group Embedded Figures Test (% of 25).

TABLE 2: CORRELATIONS OF INTERACTION MEASURES WITH MEASURES OF ACHIEVEMENT, LANGUAGE CONTACT, AND FIELD SENSITIVITY

	Total Interaction	% of Initiated Interaction
Total Interaction		.942
Structure Placement	-.314	-.600
Structure Final	.929	.728
% Change	.943	1.000
Aural Comprehension Placement	.200	.429
Aural Comprehension Final	.829	.886
% Change	.657	.486
Cloze	.714	.771
Language Contact Profile	.936	.971
Embedded Figures	.843	.757

For all of the above, p is significant at .886 for a one-tailed test at .05.